REMARKS

Claims 25-63 were previously withdrawn from consideration. Claims 1-24 remain under consideration. In this response, no claims are amended. It is believed that the claims are in condition for allowance and such allowance is requested in light of the following remarks.

Claim Rejections – 35 USC § 112

Claims 6, 13, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is alleged that since the claim is not claiming a memory circuit, it is not understood what a "word line precharge signal" would be with respect to a "voltage generator". The applicants disagree.

Definiteness of claim language must be analyzed, not it a vacuum, but in light of: a) the content of the particular application disclosure; b) the teachings of the prior art; and c) the claim interpretation that would be given by one possessing the ordinary level of skill in the pertinent art at the time the invention was made (MPEP 2173.02).

Claim 6 depends from claim 1. Claim 1 recites that the second charge pump is ***adapted to be controlled*** by a precharge signal (emphasis added). It is not alleged that this feature of claim 1 is indefinite. Claim 6 further recites that the precharge signal is a word-line precharge signal.

The content of the application disclosure consistently states that the claimed voltage generator is for use with semiconductor memory devices. See, e.g., the Title. Furthermore, those of ordinary skill in the art are quite aware that word-lines are associated with semiconductor memory devices.

Thus, if the feature of a second charge pump adapted to be controlled by a precharge signal as recited in claim 1 is not indefinite, then the additional feature of the second charge pump adapted to be controlled by a word-line precharge signal as recited in claim 6 is not indefinite.

Claim 13 depends from claim 7. Claim 7 recites a ***voltage generator configured to bias a word line*** that comprises, *inter alia*, a first means for pumping charge to a voltage source (emphasis added). It is not alleged that this feature of claim 7 is indefinite. Claim 13 recites that the voltage source is a voltage source for negatively biasing a word line.

The content of the application disclosure consistently states that the claimed voltage generator is for use with semiconductor memory devices. See, e.g., the Title. Furthermore,

those of ordinary skill in the art are quite aware that word-lines are associated with semiconductor memory devices.

The applicants submit that if the feature of a voltage generator configured to bias a word line as recited in claim 7 is not indefinite, then the feature of a voltage source for negatively biasing a word line as recited in claim 13 is not indefinite.

Claim 24 depends from claim 17. Claim 17 recites a method for biasing a word line that includes controlling a voltage generator responsive to a precharge signal. It is not alleged that these features of claim 17 are indefinite. Claim 24 further recites that the precharge signal is a word-line precharge signal.

The content of the application disclosure consistently states that the claimed voltage generator is for use with semiconductor memory devices. See, e.g., the Title. Furthermore, those of ordinary skill in the art are quite aware that word-lines are associated with semiconductor memory devices.

The applicants submit that if a method for biasing a word line that includes controlling a voltage generator responsive to a precharge signal is not indefinite, then the additional feature that the precharge signal is word line precharge signal is not indefinite.

Thus, for the reasons above, the applicants submit that claims 6, 13, and 24 are not indefinite.

Park FIG. 1B

Claim 1 recites both a first charge pump having an output and a second charge pump having an output coupled to the output of the first charge pump. It has been alleged that U.S. Patent No. 5,367,489 to Park ("Park"), FIG. 1B discloses the recited first charge pump. In particular, capacitor C5, capacitor C6, and the unlabeled transistors connected thereto are alleged to be the recited first charge pump.

In regard to the applicant's previous "somewhat bizarre" statement that "a voltage pumping circuit ... is not a charge pump," the Examiner misquotes the applicants. The applicants stated that "the ***alleged first charge pump*** ... is not actually a charge pump."

Park admits that the "voltage pumping circuit" of FIG. 1B was originally disclosed in the IEEE JOURNAL OF SOLID STATE CIRCUITS, VOL. 24, NO. 3, JUNE 1989 (column 1, lines 52-56). The applicants supplied this journal article, written by Kitsukawa et al., ("Kitsukawa") in an IDS mailed using Express Mail procedures on 9 December 2003. Please note that the appearance of "FIG. 1A" at column 1, line 53 of Park is clearly a mistake. Park

is obviously referring to FIG. 1B, since Park FIG. 1B shows exactly the same circuit that appears in the upper half of the circuit shown by Kitsukawa FIG. 6.

The Kitsukawa reference, and not the Park reference, should be considered the ultimate authority on what Park FIG. 1B purports to teach. Kitsukawa describes FIG. 6 as a "Vch generator" and a "word driver" (page 598, Section III.B, first paragraph, first sentence). The "Vch generator" is illustrated by the upper half of Kitsukawa FIG. 6. Thus, Park FIG. 1B purports to describe the "Vch generator" of Kitsukawa FIG. 6.

Kitsukawa teaches that the "Vch generator" consists of a "***multi-stage pumping circuit*** ... and ***level compensator*** (page 598, Section III.B, second paragraph, second sentence; emphasis added). Kitsukawa teaches that the multi-stage pumping circuit is driven by clocks Φ_1, Φ_2, and Φ_{PH} (page 598, Section III.B, second paragraph, second sentence). Kitsukawa FIG. 6 labels the right-hand side of the "Vch generator" (the part ***not*** driven by clocks Φ_1, Φ_2, and Φ_{PH}) as the "level compensator." The "level compensator" illustrated in Kitsukawa FIG. 6 corresponds to the alleged first charge pump (C5, C6, and unlabeled transistors) of Park FIG. 1B.

Thus, Kitsukawa describes the alleged second charge pump as a "multi-stage pumping circuit" and describes the alleged first charge pump as a "level compensator." Clearly, a "multi-stage pumping circuit" is ***not*** synonymous with a "level compensator" (emphasis added). Thus, the alleged first charge pump of Park FIG. 1B (C5, C6, and unlabeled transistors) is not a charge pump.

The statement that "[t]here is no question that the circuit in FIG. 1B of Park is a "charge pump" is absolutely wrong. The issue is ***NOT*** whether Park's "voltage pumping circuit" of FIG. 1B is a "charge pump" (emphasis added). The Examiner has alleged that ***a portion*** of Park's FIG. 1B is a first charge pump and ***another portion*** of Park's FIG. 1B is a second charge pump. Thus, the issue is whether each of the alleged first and second charge pumps are indeed charge pumps. Just because Park uses the phrase "voltage pumping circuit" to refer to FIG. 1B in its entirety does not necessarily mean that each of the alleged first and second charge pumps included in FIG. 1B are, in fact, both charge pumps. As shown above, Kitsukawa, the reference that Park is purporting to describe in FIG. 1B, unambiguously teaches that they are not.

Claim Rejections – 35 USC § 102

Claims 1-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Park. The applicants disagree.

With regard to claims 1, 7, 14, it is alleged that a portion of Park FIG. 1B (capacitors C5, C6, and unlabeled transistors) are the recited first charge pump (claim 1), the recited first means for pumping charge (claim 7), and the recited first charge pump (claim 14). As explained above, Park does not teach this feature. Consequently, claims 1, 7, 14 are not anticipated by Park FIG. 1B because Park FIG. 1B does show the identical invention in as complete detail as contained in the claims. MPEP 2131, *citing* Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236 (Fed. Cir. 1989).

Claims 2-6, 8-13, and 15-16 depend from claims 1, 7, and 14, respectively. Consequently, Park also fails to anticipate these claims because Park does not teach every feature inherent in the claims (MPEP 2131).

Regarding claims 1, 7, 14, and 17, each recites, *inter alia*, biasing a word line from a boosted voltage having a first polarity to a second voltage having a second polarity.

It is alleged that a new rejection of claims 1, 7, 14, and 17 under § 102(b) using Park FIGs. 6, 7A, and 7B is justified because "nowhere do the claims state that the second polarity is different from the first." To the contrary, the very use of the terms "first polarity" and "second polarity" require that the first and second polarities be different.

The words of a claim must be given their plain meaning unless they are defined in the specification (MPEP 2111.01). "First polarity" and "second polarity" have not been defined in the specification. Plain meaning refers to the meaning given to the term by those of ordinary skill in the art (MPEP 2111.01). Those of ordinary skill, when considering the term "polarity" used in conjunction with the term "voltages", think in terms of "positive" and "negative". Webster's Third New International Dictionary (2002) defines "polarity" as "the particular[,] ***either positive or negative state*** (as of a body)[,] with reference to ***the two poles*** or to electrification" (emphasis added). While those of ordinary skill frequently refer to voltages as being "more positive" or "more negative" than others, they are not referring to the polarity of the voltage but to the magnitude of the voltage. One of ordinary skill, confronted with the terms "first polarity" and "second polarity" would know that the polarities are opposite to each other. Any other interpretation of the claim renders the words "first" and "second" meaningless. All words in a claim must be considered in judging the patentability

of that claim against the prior art. MPEP 2143.03, *citing* In re Wilson 424 F.2d 1382, 1385 (CCPA 1970).

Furthermore, pending claims must be interpreted ... consistently with the specification. See MPEP 2111, *citing* In re Prater, 415 F.2d 1393 1404-05 (CCPA 1969). The feature of biasing a word line from a boosted voltage having a first polarity to a second voltage having a second polarity is ***explicitly*** recited in claims 1, 7, 14, 17 (emphasis added). Reading a claim in light of the specification to interpret features explicitly recited in the claims is permissible. See MPEP 2111, *citing* In re Prater, 415 F.2d 1393 1404-05 (CCPA 1969). The specification states that because most semiconductor memory devices operate from ***positive*** power supplies, the applicants' back-biasing scheme is described in terms of a ***negative*** voltage (page 5, lines 1-3; emphasis added). However, "negative" is understood to mean simply the ***reverse polarity*** from that applied to a word line during an access operation (page 5, lines 3-4; emphasis added). Thus, the interpretation of the terms "first polarity" and "second polarity" to be the same polarity is inconsistent with the specification.

The Examiner has stated, with respect to the 35 USC § 103 rejections, that Park FIGS. 1B, 6, 7A, and 7B fail to disclose this feature of claims 1, 7, 14, 17. Consequently, Park does not anticipate the claims because it does not show the identical invention in as complete detail as contained in the claims. MPEP 2131, *citing* Richardson v. Suzuki Motor Co., 868 F.2d 1226, 1236 (Fed. Cir. 1989).

Claims 2-6, 8-13, 15-16, and 18-24 depend from claims 1, 7, 14, and 17, respectively. Consequently, Park also fails to anticipate these claims because Park does not teach every feature inherent in the claims (MPEP 2131).

Claim Rejections – 35 USC § 103

Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park in view of U.S. Patent No. 5,856,918 to Soneda et al ("Soneda"). The applicants disagree.

Regarding claims 1, 7, 14, and 17, each recites, *inter alia*, biasing a word line from a boosted voltage having a first polarity to a second voltage having a second polarity.

When Park's word line precharge signal transitions from Vpp to 0V, the signal lines G3 and G4 are pumped to ***a level Vpp which is greater than level Vcc*** (FIG. 1B; column 1, line 66 to column 2, line 8; emphasis added). When the word line precharge signal transitions from 0V to Vpp, the ***signal lines G3 and G4 are returned to level Vcc*** (FIG. 1B; column 2, lines 9-18). Park teaches that ***Vpp and Vcc are both positive voltages*** (column 1, lines 66-68; emphasis added). Since Vpp and Vcc are both positive voltages, Vpp and Vcc

have the same polarity. These statements accurately reflect the teachings of Kitsukawa (see page 598, section B; and also FIGS. 6 and 7). Similarly, Park FIG. 8 shows that the boosted voltage Vpp of FIG. 7B is always of the same positive polarity (column 13, lines 22 – column 14, line 3).

According to Park's Abstract, "[t]he voltage pumping circuit generates at an initial power-up state a first output voltage which is substantially identical to the memory device source supply voltage. The pumping circuit then pumps the first output voltage up to a second output voltage which is ***higher than*** the first output voltage" (emphasis added).

Consequently, since the output of Park's voltage pumping circuit is always positive, Park fails to teach the recited feature of biasing a word line from a boosted voltage having a first polarity to a second voltage having a second polarity.

Soneda FIG. 4J shows that the booster circuit of FIGS. 2 and 3 produces a boosted voltage that ranges between GND and 4Vcc. Thus, the boosted voltage has only one (positive) polarity. Soneda FIG. 10J shows that the booster circuit of FIGS. 8 and 9 produces a boosted voltage that ranges between GND and -3Vcc. Thus, the boosted voltage has only one (negative) polarity. Consequently, since the output of Soneda's voltage pumping circuits are either always positive or always negative, Soneda fails to teach the recited feature of biasing a word line from a boosted voltage having a first polarity to a second voltage having a second polarity.

Soneda is only being relied upon to show conversion of the positive voltage generator of Park to a negative voltage generator such as the one disclosed by Soneda. If Park's positive voltage generator was converted to the negative voltage environment as suggested, then the voltages Vpp and Vcc would both be negative. Park makes it clear in his Abstract that the source supply voltage Vcc and the boosted voltage Vpp are of the same polarity. As explained above, regardless of whether the voltage generator is positive or negative, the teachings of Park and Soneda do not disclose that a voltage is boosted from a positive voltage to a negative voltage or vice versa.

Thus, because neither Park nor Soneda, ***either alone or in combination***, teach the recited feature of biasing a word line from a boosted voltage having a first polarity to a second voltage having a second polarity, the Park/Soneda combination fails to establish a *prima facie* case for claims 1, 7, 14, 17 (MPEP 2143.03).

Claims 2-6, 8-13, 15-16, and 18-24 depend from independent claims 1, 7, 14, and 17 respectively. If an independent claim is nonobvious, then any claim depending therefrom is also nonobvious. MPEP 2143.03, *citing* In re Fine, 837 F.2d 1071 (Fed. Cir. 1988).

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 1-24 of the application is requested. Please telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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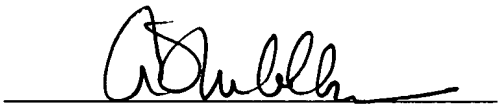

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